

	A	B	C	D	E	F	G	H	I	J	K
1	Summary of Fish Tissue-based Toxicity Values for DDx										
2	COPC form	Species	Endpoint	Endpoint Effect	Whole Body Conc. (mg/kg wet wt.)	ACR Applied?	Final Whole Body Conc. (mg/kg wet wt.)	Final Species LOAEL (mg/kg wet wt.)	Exposure Route	Duration	Reference
3	DDT (total)	<i>Carassius auratus</i> (goldfish)	Behavior Directly Linked to Mortality	equilibrium loss and convulsions	5.1	Yes	0.61	11	water	6 hrs (32 day recovery)	Gakstatter and Weiss 1967
4	DDT (total)	<i>Carassius auratus</i> (goldfish)	Mortality	20% mortality	200	No	200	--	food and water	38 days	Rhead and Perkins 1984
5	DDT (total)	<i>Lepomis cyanellus</i> (green sunfish)	Mortality	reduced survival	24	No	24	24	water	90 days	Hamelink et al. 1971
6	DDT (total)	<i>Lepomis gibbosus</i> (pumpkinseed)	Mortality	reduced survival	24	No	24	24	water	90 days	Hamelink et al. 1971
7	DDT (total)	<i>Lepomis macrochirus</i> (bluegill)	Behavior Directly Linked to Mortality	equilibrium loss and convulsions	4.2	Yes	0.51	0.51	water	5 hrs (32 day recovery)	Gakstatter and Weiss 1967
8	DDT (mixture)	<i>Oncorhynchus clarkii</i> (cutthroat trout)	Mortality	significant mortality	1.1	No	1.1	1.1	water	612 days (mortality observed at 111 days)	Allison et al. 1964 (more detailed report version of Allison et al. 1963)
9	DDT (total)	<i>Oncorhynchus kisutch</i> (Coho salmon)	Mortality	85% mortality	33.8	No	33.8	33.8	food	64 days	Buhler et al. 1969
10	DDT (total)	<i>Oncorhynchus tshawytscha</i> (Chinook salmon)	Mortality	18% mortality	12.3	No	12.3	12.3	food	64 days	Buhler et al. 1969
11	Technical grade DDT	<i>Pimephales promelas</i> (fathead minnow)	Mortality	~25% reduced survival	56.8	No	56.8	56.8	diet	266 days	Jarvinen et al. 1977
12	DDT (total)	<i>Salvelinus fontinalis</i> (brook trout)	Reproduction	offspring (sac-fry and embryo) mortality	2.8	No	2.8	2.8	food	156 days	Macek 1968a
13	DDT (4,4'-DDE)	<i>Salvelinus namaycush</i> (lake trout)	Mortality	34.4% fry mortality	0.29	No	0.29	-	water and diet	176 days	Berlin et al. 1981
14	DDT (total)	<i>Carassius auratus</i> (goldfish)	Behavior	locomotor activity reduced	1.49 - 1.84	No	1.49 - 1.84	-	water	4 days	Davy et al. 1972
15	DDT (total)	<i>Fundulus heteroclitus</i> (killifish)	Mortality	25% mortality	5.2	Yes	0.63		water	24 hrs	Crawford and Guarino 1976
16	ne	<i>Gadus morhua</i> (Atlantic cod)	Behavior	altered behavior	7	No	7	-	ne	na	Dillon 1984
17	DDT (total)	<i>Gambusia affinis</i> (mosquito fish)	Mortality	reduced survival	26.5	No	26.5	-	water	16 days	Pillai et al. 1977
18	DDT (mixture)	<i>Lagodon rhomboides</i> (pinfish)	Mortality	44% mortality at 10 days	0.55	No	0.55	-	diet	15 days	Butler 1969
19	DDT (2,4'-DDT)	<i>Micropogonias undulatus</i> (Atlantic croaker)	Behavior	reduced larval swimming ability	0.07	No	0.07	-	diet	1 month	Faulk et al. 1999

	L	M	N
1			8.3
2	Notes	Acceptable for TRV derivation?	Reason not acceptable for TRV derivation
3	goldfish exhibited severe symptoms of toxicity including convulsions and equilibrium loss.	Yes	
4	radio tracer study; mortality is slightly less than 2X control mortality, however it is dose responsive with >80% mortality in higher dose group	Yes	
5	no statistical analysis of effects; effect threshold is anecdotally stated in the text.	Yes	
6	no statistical analysis of effects; effect threshold is anecdotally stated in the text.	Yes	
7	goldfish exhibited severe symptoms of toxicity including convulsions and equilibrium loss	Yes	
8	LOAEL is tissue concentration at -(166d, 5.5-months) in fish exposed to 0.1 mg/kg DDT in-water where mortality was significant "after 4 months" (approximately 120d); note that tissue concentrations at this dose increased from 1.8 mg/kg at the previous sampling (+11d). Units assumed to be ww. The whole body ΣDDX concentrations in Lot I ranged from 1.1 to 5.7 mg/kg beginning with samples taken after 1 month. Selection of the lowest concentration may underestimate the LOAEL	Yes	
9	juvenile fish exposed for 64 days (trial V), not statistically evaluated, tissues sampled at 39 days	Yes	
10	trial I data not used, residue at d 7 but exposed for 40d; LOAEL based on trial II 64 day exposure; not statistically evaluated; tissues sampled at 65 days.	Yes	
11	LOAEL is associated with the food only exposure; ΣDDX LOAEL from the study was identified as the grand mean ΣDDX concentration calculated from all time intervals.	Yes	
12	range of parental tissue residues was 2.8 to 3.0; residues in offspring (fry) ranged from 2.62 to 3.09 ug/g ww	Yes	
13	Control and treated eggs started with elevated PCBs and DDTs (7.6 and 3.8 µg/g, respectively)	Yes	
14	consecutive turns in locomotor pattern	No	behavior endpoint not directly related to growth, survival, or reproduction
15	LOAEL is residues in 10 different tissues of fish exposed to 0.1 ppm DDT for two 24hr DDT doses at 24 hrs after exposures	No	Study did not report a wb concentration or weighting factors for individual tissues
16		No	Secondary citation from review paper
17		No	residue and effects data from two different experiments
18	residues in surviving fish were much higher- avg. 4.23 at same treatment level.	No	no clear dose-response of tissues with mortality
19	fertilized eggs analyzed	No	LOAEL based on egg residues

	A	B	C	D	E	F	G	H	I	J	K
20	Purified DDT	<i>Misgurnus anguillicaudatus</i> (pond loach)	Mortality	Lethal body burden in 24 hours	25	Yes	3.0	-	water	48 hours	Yang and Sun 1977
21	ne	<i>Oncorhynchus kisutch</i> (Coho salmon)	Mortality	LD50	56	Yes	6.7	-	na	na	Cleveland et al. 1993
22	DDT (technical)	<i>Oncorhynchus kisutch</i> (Coho salmon)	Mortality	LD50	95	Yes	11	-	diet	120 days	Buhler and Shanks 1970
23	ne	<i>Oncorhynchus kisutch</i> (Coho salmon)	Mortality	reduced survival	0.83	Yes	0.1	-	na	na	Johnson and Pecor 1969 (as cited in Beckvar et al. 2005)
24	DDT (total)	<i>Oncorhynchus mykiss</i> (rainbow trout)	Mortality	70% fry mortality	0.464	No	0.464	-	field	60 days	Cuerrier et al. 1987
25	DDT (total)	<i>Oncorhynchus mykiss</i> (rainbow trout)	Mortality	early life-stage mortality	1.27	No	1.27	-	field (maternal transfer and water)	field exposure	Hopkins et al. 1969
26	ne	<i>Oncorhynchus mykiss</i> (rainbow trout)	Mortality	50% mortality; increased learning rate	30	Yes	3.6	-	gavage	96 hrs	McNicholl and Mackay 1975b
27	ne	<i>Pimephales promelas</i> (fathead minnow)	Mortality	decreased hatchability	24	No	24	-	water	266 days	Cuerrier et al. 1976
28	ne	<i>Pimephales promelas</i> (fathead minnow)	Mortality	25% mortality	57	No	57	-	diet and water	266 days	Cuerrier et al. 1976, 1977
29	DDT (mixture)	<i>Pleuronectes americanus</i> (winter flounder)	Reproduction	99% embryo mortality	2.4	No	2.4	-	water	10 days	Smith and Cole 1973
30	DDT (total)	<i>Poecilia latipinna</i> (sailfin molly)	Mortality, Growth	78% mortality, decreased growth, lipids and triglycerides in 21 days	92.7	Yes	11.17	-	water	21 days	Benton et al. 1994
31	DDT (total)	<i>Salvelinus fontinalis</i> (brook trout)	Mortality	reduced survival during stress (starvation)	20.2	No	20.2	11.9	diet	26 wks	Macek 1968b
32	ne	<i>Salvelinus fontinalis</i> (brook trout)	Mortality	increased mortality	11.92	No	11.92	-	na	na	Burdick et al. 1972 (as cited in Beckvar et al. 2005)
33	DDT (mixture)	<i>Salvelinus namaycush</i> (lake trout)	Mortality	fry mortality	2.9	No	2.9	-	field (water)	4 yr study	Burdick et al. 1964
34	DDT (total DDE)	<i>Salvelinus namaycush</i> (lake trout)	Mortality	decreased survivorship of fry	1.27	No	1.27	-	water/ parental transfer	na	Mac et al. 1985
35	na - not applicable; study not acceptable for inclusion in SSD derivation										

	L	M	N
20	residues determined by subtraction from water concentration before and after exposure.	No	tissue residue not measured
21		No	No DDT data are presented in selenium study
22	body burden calculated from dietary intake	No	tissue residue not measured
23	correlation between DDTs and larval survival, fish from OR vs Great Lakes.	No	LOAEL based on field collected fish; no controls
24	correlation between DDTs and larval survival in fish from various hatcheries	No	LOAEL based on egg residues taken from field-collected adults
25	correlations between tissues in fish from throughout New Zealand and reproduction	No	LOAEL based on egg residues taken from field-collected adults
26	gavage	No	fish exposed via gavage; no tissue residue data reported
27		No	Could not obtain paper
28		No	Could not obtain paper
29	eggs analyzed from adults exposed through diet	No	LOAEL based on egg residue from eggs taken from field-collected adults
30		No	Discrepancy in LOAEL units; contacted authors, and they don't know which units are correct
31	EPA's LOAEL of 11.2 µg/g is for increased wt during feeding period.	No	Fish were exposed to multiple stressors (starvation and DDT)
32		No	secondary citation; LOAEL based on egg residue from eggs taken from field-collected adults
33	correlations between tissues in fish from field locations and reproduction	No	LOAEL based on egg residue from eggs taken from field-collected adults
34		No	LOAEL based on egg residue from eggs taken from field-collected adults
35			

	A	B	C	D
1	Created By Version	5.0.1		
2	Required Version	5.0.0		
3	Recommended Version	5.0.0		
4	Modified By Version	5.7.1		
5				
6				
7				
8				
9	Count	1		
10	GUID	Name	Range	CRC
11	FIT_E52A0_C0317	DDX_103008	57	0

	E
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	Options
11	F100-1E+300 1E+300 103 00 121BetaGeneralBetaSubjBinomialExponExtValueGammaGeometIntUniformInvGaussLogisticLogLogisticLognormNegBinNormalParetoPearson5Pearson6PoissonTriangUniformWeibull01-11 0 1000

	F
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	Comp. Graph Serialization
11	QEBAQEAAQEBAAIAcqwAAboAAMgAAN0AAPIAAcBABwBADEBAEYBAFsBAAwABUJucHV0AAAIAQIADAAFRXhwb24AAS8BAgATAAxVbnVzZWQgQ3VydmUAAk8BAgATAAxVbnVzZWQgQ3VydmUAA4wBAgATAAxVbnVzZWQgQ3VydmUABCc BAgATAAxVbnVzZWQgQ3VydmUABUwBAgATAAxVbnVzZWQgQ3VydmUABjkBAgATAAxVbnVzZWQgQ3VydmUAB04BAgATAAxVbnVzZWQgQ3VydmUACCMBAgATAAxVbnVzZWQgQ3VydmUACSkBAgB4AYIBAQECAZqZnZmZmak/AAGYmZmZ mZm5PwABBQABAQEA

	G
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	PP Graph Serialization
11	GF1_jYW3AgEAAABeAQwjAAAAJgBnAHAAcQCHAj4AAAAAAAAAAD//wABKIByb2JhYmlsaXR5LVByb2JhYmlsaXR5lFBsb3Qgb2YgRERYXzEwMzAwOAERUmlza0V4cG9uKDE4LjY5OSkBAQUAAAABAwABAP8BAQEBAQ1JbnB1dCbwLVZhbHVI AQEBAAQEBAQEORm0dGVklHAtVmFsdWUBAQEJugAHxgAH2QAH7AAH/wAHEgEHJQEHOAEHSwEHDAAFRXhwB24AC8BEwAMVW51c2VkiEN1cnZIAAFPARMADFVudXNIZCBDdXJ2ZQAcjAETAAxVbnVzZWQgQ3Vyd mUAyCBEwAMVVW51c2VkiEN1cnZIAARMARMADFVudXNIZCBDdXJ2ZQAFQETAAxVbnVzZWQgQ3VydumUAbk4BEwAMVW51c2VkiEN1cnZIAAcjARMADFVudXNIZCBDdXJ2ZQAIKQE=

	H
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	QQ Graph Serialization
11	GF1_jYW3AgEAAABaAQwjAAAAJgBhAGoAawCCAJoAAAAAAAAAAD//wABJFF1YW50aWxILVF1YW50aWxIIFBs3Qgb2YgRERYXzEwMzAwOAERUmlza0V4cG9uKDE4LjY5OSkBAQUAAAABAwABAP8BAQEBAQ5JbnB1dCBRdWFudGlsZQEBAQEBD0ZpdHRIZCBRdWFudGlsZQEBAQm2AACAAVAAfAAf7AACOAQchAQcOAQdHAQcMAAVFeHBvgAALwETAAxVbnVzZWQgQ3VydmlAAU8BEwAMVW51c2VklEN1cnZIAAKMARMDFVuXNIZCBDdXJ2ZQADJwETAAxVbnVzZWQgQ3VydmlAAU8BEwAMVW51c2VklEN1cnZIAAgpAQ==

	I
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	Result Display Options
11	23

	A	B	C	D	E	F	G	H
1	@RISK Fit Results							
2	Performed By: mgl							
3	Date: Friday, January 04, 2013 12:35:00 PM							
4								
5		Input	Weibull	LogLogistic	Lognorm	Expon		InvGauss
6	Fit							
7		Function	RiskWeibull(0.86454,17.312)	RiskLog logistic(0,10.067,1.0988)	RiskLognorm(27.721,85.895)	RiskExpon(18.488)		RiskInvgauss(18.488,2,9434)
8	Distribution Statistics							
9		Minimum	0.506	0	0	0	0	0
10		Maximum	56.8	+Infinity	+Infinity	+Infinity	+Infinity	+Infinity
11		Mean	18.488	18.6398	103.3063	27.7205	18.488	18.488
12		Mode	1.9134 [est]	0	0.6234	0.8031	0	0.9784
13		Median	12.3	11.3299	10.0669	8.5137	12.8149	4.7327
14		Std. Deviation	18.4659	21.6335	+Infinity	85.8951	18.488	46.3347
15		Skewness	1.138	2.4939	+Infinity	39.0469	2	7.5186
16		Kurtosis	4.1239	12.7679	+Infinity	15348.6065	9	97.2163
17	Percentiles							
18		5%	0.506	0.56	0.6904	0.68	0.9483	0.7169
19		10%	0.506	1.3	1.3628	1.1883	1.9479	0.9956
20		15%	1.1	2.1164	2.0762	1.7318	3.0046	1.2732
21		20%	1.1	3.0539	2.8507	2.3361	4.1255	1.5727
22		25%	2.8	4.0971	3.7039	3.0201	5.3187	1.9083
23		30%	2.8	5.2537	4.6558	3.8035	6.5942	2.2936
24		35%	11.0856	6.5357	5.7308	4.7097	7.9643	2.7445
25		40%	11.0856	7.9599	6.9603	5.7684	9.4441	3.2813
26		45%	12.3	9.5481	8.3864	7.0188	11.0528	3.9314
27		50%	12.3	11.3299	10.0669	8.5137	12.8149	4.7327
28		55%	12.3	13.3447	12.084	10.327	14.7628	5.7401
29		60%	24	15.6468	14.5599	12.5656	16.9403	7.0358
30		65%	24	18.3133	17.6838	15.3904	19.4091	8.7478
31		70%	24	21.4581	21.767	19.0572	22.259	11.0858
32		75%	24	25.2595	27.361	24.0003	25.6298	14.4174
33		80%	33.8	30.0192	35.5502	31.0275	29.7552	19.4433
34		85%	33.8	36.3086	48.8106	41.855	35.0739	27.6762
35		90%	56.8	45.4267	74.3655	60.9984	42.5701	43.0873
36		95%	56.8	61.5894	146.7966	106.5996	55.385	80.9225
37	Chi-Squared Test							
38		Chi-Sq Statistic		0.1111	1	1	0.1111	1
39		P-Value		0.7389	0.3173	0.3173	0.7389	0.3173
40		Cr. Value @ 0.750		0.1015	0.1015	0.1015	0.1015	0.1015
41		Cr. Value @ 0.500		0.4549	0.4549	0.4549	0.4549	0.4549
42		Cr. Value @ 0.250		1.3233	1.3233	1.3233	1.3233	1.3233
43		Cr. Value @ 0.150		2.0723	2.0723	2.0723	2.0723	2.0723
44		Cr. Value @ 0.100		2.7055	2.7055	2.7055	2.7055	2.7055
45		Cr. Value @ 0.050		3.8415	3.8415	3.8415	3.8415	3.8415
46		Cr. Value @ 0.025		5.0239	5.0239	5.0239	5.0239	5.0239
47		Cr. Value @ 0.010		6.6349	6.6349	6.6349	6.6349	6.6349
48		Cr. Value @ 0.005		7.8794	7.8794	7.8794	7.8794	7.8794
49		Cr. Value @ 0.001		10.8276	10.8276	10.8276	10.8276	10.8276
50	Chi-Sq Test (Binning Information)							
51		Bin #1 : Minimum		0	0	0	0	0
52		Bin #1 : Maximum		11.3299	10.0669	8.5137	12.8149	4.7327
53		Bin #1 : Input		4	3	3	5	3
54		Bin #1 : Fit		4.5	4.5	4.5	4.5	4.5
55		Bin #2 : Minimum		11.3299	10.0669	8.5137	12.8149	4.7327
56		Bin #2 : Maximum		+Infinity	+Infinity	+Infinity	+Infinity	+Infinity
57		Bin #2 : Input		5	6	6	4	6
58		Bin #2 : Fit		4.5	4.5	4.5	4.5	4.5
59	Anderson-Darling Test							
60		A-D Statistic		0.3163	0.4261	0.4624	0.4644	1.1737
61		P-Value		> 0.25	N/A	N/A	> 0.25	N/A
62		Cr. Value @ 0.750		N/A	N/A	N/A	N/A	N/A
63		Cr. Value @ 0.500		N/A	N/A	N/A	N/A	N/A
64		Cr. Value @ 0.250		0.4444	N/A	N/A	0.69	N/A
65		Cr. Value @ 0.150		N/A	N/A	N/A	0.8588	N/A
66		Cr. Value @ 0.100		0.5972	N/A	N/A	0.9956	N/A

	I	J	K
1			
2			
3			
4			
5	Triang	Uniform	BetaGeneral
6			
7	RiskTriang(0,0.50602,65.732)	RiskUniform(0,63.9)	RiskBetaGeneral(0.38294,0.49798,0,56.8)
8			
9	0	0	0
10	65.7325	63.9	56.8
11	22.0795	31.95	24.6915
12	0.506	0	0
13	19.4318	31.95	21.2059
14	15.434	18.4463	20.5305
15	0.5656	0	0.2508
16	2.4	1.8	1.524
17			
18	1.9115	3.195	0.0608
19	3.6137	6.39	0.3709
20	5.3638	9.585	1.0646
21	7.1663	12.78	2.2393
22	9.026	15.975	3.9645
23	10.9488	19.17	6.2816
24	12.9416	22.365	9.2017
25	15.0127	25.56	12.7041
26	17.172	28.755	16.7346
27	19.4318	31.95	21.2059
28	21.8078	35.145	25.9999
29	24.3199	38.34	30.9711
30	26.9946	41.535	35.9535
31	29.8682	44.73	40.7674
32	32.993	47.925	45.2293
33	36.4494	51.12	49.1614
34	40.3726	54.315	52.4022
35	45.0262	57.51	54.8159
36	51.0909	60.705	56.3013
37			
38	0.1111	2.7778	0.1111
39	0.7389	0.0956	0.7389
40	0.1015	0.1015	0.1015
41	0.4549	0.4549	0.4549
42	1.3233	1.3233	1.3233
43	2.0723	2.0723	2.0723
44	2.7055	2.7055	2.7055
45	3.8415	3.8415	3.8415
46	5.0239	5.0239	5.0239
47	6.6349	6.6349	6.6349
48	7.8794	7.8794	7.8794
49	10.8276	10.8276	10.8276
50			
51	0	0	0
52	19.4318	31.95	21.2059
53	5	7	5
54	4.5	4.5	4.5
55	19.4318	31.95	21.2059
56	65.7325	63.9	56.8
57	4	2	4
58	4.5	4.5	4.5
59			
60	1.2367	3.213	+Infinity
61	N/A	N/A	N/A
62	N/A	N/A	N/A
63	N/A	N/A	N/A
64	N/A	N/A	N/A
65	N/A	N/A	N/A
66	N/A	N/A	N/A

	A	B	C	D	E	F	G	H
67		Cr. Value @ 0.050		0.7097	N/A	N/A	1.2384	N/A
68		Cr. Value @ 0.025		0.8222	N/A	N/A	1.4916	N/A
69		Cr. Value @ 0.010		0.9731	N/A	N/A	1.8366	N/A
70		Cr. Value @ 0.005		N/A	N/A	N/A	2.1038	N/A
71		Cr. Value @ 0.001		N/A	N/A	N/A	2.3756	N/A
72	Kolmogorov-Smirnov Test							
73		K-S Statistic		0.179	0.1931	0.2349	0.1928	0.3667
74		P-Value		> 0.1	N/A	N/A	> 0.15	N/A
75		Cr. Value @ 0.750		N/A	N/A	N/A	N/A	N/A
76		Cr. Value @ 0.500		N/A	N/A	N/A	N/A	N/A
77		Cr. Value @ 0.250		N/A	N/A	N/A	N/A	N/A
78		Cr. Value @ 0.150		N/A	N/A	N/A	0.2925	N/A
79		Cr. Value @ 0.100		0.2519	N/A	N/A	0.3126	N/A
80		Cr. Value @ 0.050		0.2712	N/A	N/A	0.3415	N/A
81		Cr. Value @ 0.025		0.2913	N/A	N/A	0.3677	N/A
82		Cr. Value @ 0.010		0.3125	N/A	N/A	0.401	N/A
83		Cr. Value @ 0.005		N/A	N/A	N/A	N/A	N/A
84		Cr. Value @ 0.001		N/A	N/A	N/A	N/A	N/A

	I	J	K
67	N/A	N/A	N/A
68	N/A	N/A	N/A
69	N/A	N/A	N/A
70	N/A	N/A	N/A
71	N/A	N/A	N/A
72			
73	0.2571	0.4022	0.2606
74	N/A	N/A	N/A
75	N/A	N/A	N/A
76	N/A	N/A	N/A
77	N/A	N/A	N/A
78	N/A	N/A	N/A
79	N/A	N/A	N/A
80	N/A	N/A	N/A
81	N/A	N/A	N/A
82	N/A	N/A	N/A
83	N/A	N/A	N/A
84	N/A	N/A	N/A